

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-016646**Date Inspected:** 03-Sep-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1400**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A). Field Splice E3/E4, "A" Deck Stiffeners
- B). Field Splice E4/E5, "A" Deck Stiffeners
- C). Field Splice E5/E6

A). Field Splice E3/E4, "A" Deck Stiffeners

The QAI observed the welder, Hua Qiang Hwang ID-2930, perform the Complete Joint Penetration (CJP) groove welding on the longitudinal stiffener field splice identified as WN: 3E-4E-A-LS3. The welder utilized the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 and was also utilized by the QC inspector John Pagliero as a reference. The amperage was recorded as 120 amps and the minimum preheat of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was verified.

The welding was performed in the vertical (3G) position with the work placed in an approximately vertical plane and the groove approximately vertical. The welder utilized a slag hammer, pneumatic air gun with an attached chisel and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit each fill pass. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250

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degrees Celsius appeared to be in compliance with the contract documents. The welder completed the correcting of the root opening and the QAI observed the QC inspector perform a dimensional survey of the root opening and the included angle prior to the CJP welding. At the time of the observation no issues were noted by the QAI.

B). Field Splice E4/E5, "A" Deck Stiffeners

The QAI observed the welder, Xiao Jian Wan ID-9677, perform the CJP groove welding on the longitudinal stiffener at the field splices identified as WN: 4E-5E-A-LS5. The welder utilized the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 and was also utilized by the QC inspector John Pagliero as a reference. The amperage was recorded as 123 amps and the minimum preheat of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was verified. At the completion of the CJP on the "A" face and back grinding of the weld joint, the QC inspector John Pagliero performed the visual inspection of the of the excavation. At the conclusion of the inspection, James Cunningham performed the MPT of the back gouge and no rejectable indications were noted. At this time the welder commence the CJP groove welding from the "B" face of the weld joint of the longitudinal stiffener field splice. The welding was completed during this shift.

The welding was performed in the vertical (3G) position with the work placed in an approximately vertical plane and the groove approximately vertical. The welder utilized a slag hammer, pneumatic air gun with an attached chisel and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit each fill pass. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. The welder completed the correcting of the root opening and the QAI observed the QC inspector perform a dimensional survey of the root opening and the included angle prior to the CJP welding. At the time of the observation no issues were noted by the QAI.

C). Field Splice E5/E6

The QAI observed Darcel Jackson ID-9967 perform the repair welding of the areas previously marked during QC ultrasonic testing on the side plate field splice identified as WN: 4E-5E-D1 and D2. The repair welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process and the 3.2mm electrode as per the Welding Procedure Specification (WPS) identified as ABF-WPS-1000 Repair Rev. 2. The WPS was also used by the QC inspector, William Sherwood, as a reference to monitor and verify the Direct Current welding parameters and were noted as 125 amps. The welding was performed in the flat (1G) position with the work positioned approximately in the horizontal plane and the weld metal deposited from the upper side of the joint.

QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the SMAW process appeared to comply with the AWS Specification and AWS Classification. The QC inspection,

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testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs below illustrate the work observed during this scheduled shift.



Summary of Conversations:

There were general conversations with Quality Control Inspector Bonifacio Daquinag, Jr. and Mike Johnson at the start of the shift regarding the location of American Bridge/Fluor welding, inspection and N.D.E. testing personnel scheduled for this shift.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Reyes,Danny	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer
